

UNITED STATES

v.

WILLIE WHITE ET AL.

IBLA 87-808

Decided March 12, 1991

Appeal from a decision of Administrative Law Judge Harvey C. Sweitzer declaring 41 lode mining claims and 21 placer mining claims null and void for lack of a discovery of a valuable mineral deposit. F-83935.

Affirmed.

1. Board of Land Appeals--Estoppel--Mining Claims: Generally

The Board of Land Appeals has well-established rules governing consideration of estoppel issues. They are the elements of estoppel described in United States v. Georgia-Pacific Co., 421 F.2d 92 (9th Cir. 1970); the rule that estoppel is an extraordinary remedy, especially as it relates to public lands; and the rule that estoppel against the Government must be based upon affirmative misconduct. The existence of a crucial misstatement of material fact upon which another party relied to its asserted detriment is a prerequisite to the invocation of estoppel.

2. Mining Claims: Determination of Validity--Mining Claims: Discovery: Marketability

The requirement that a mining claimant show that the mineral discovered on the claim is presently marketable

at a profit simply means that a mining claimant must show that, as a present fact, taking into consideration historic price and cost factors as well as the likelihood of their continuance or change, there is a reasonable likelihood of success in developing a paying mine.

3. Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

Under the prudent man test, a discovery exists where minerals have been found in sufficient quantity and of sufficient quality that a person of ordinary prudence would be justified in the further expenditure of his labor and means, with a reasonable prospect of success in developing a paying mine.

4. Mining Claims: Discovery: Geologic Inference

Where an exposure exists which shows high and relatively consistent values, geologic inference may be used to infer sufficient quantity of similar quality mineralization beyond the actual exposed area, such that the prudent man test of discovery might be met. However, geologic inference may not be used as a substitute for the actual exposure of the deposit within the limits of each claim at issue. Absent such exposure, there can be no discovery.

5. Mining Claims: Lode Claims

To constitute a discovery upon a lode mining claim, there must be exposed within the limits of the claim a vein or lode of quartz or other rock in place bearing gold or some other mineral deposit in such quality and quantity as would warrant a prudent man in the expenditure of his time and money with a reasonable prospect of success in developing a paying mine. Absent such an exposure, there can be no valid lode claim.

6. Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

There is a clear distinction between "exploration" and "development" as these terms relate to discovery under the mining laws. Prior to the "discovery" of a valuable mineral deposit, mining activities such as attempting to locate a deposit and the subsequent mapping and drilling of the deposit to determine the extent and grade of the mineralization disclosed constitute exploration work.

7. Mining Claims: Determination of Validity--Mining Claims: Discovery:
Generally

Where the evidence of record, considered in its entirety, fails to establish the existence of a valuable mineral deposit, as that term is understood in the mining laws, within the limits of any of the claims at issue, those claims are properly declared null and void.

APPEARANCES: Hale C. Tognoni, Esq., Phoenix, Arizona, for appellants Willie White and the Sheehan Tin Grubstake; James R. Mothershead, Esq., Office of the Regional Solicitor, U.S. Department of the Interior, Anchorage, Alaska, for the Bureau of Land Management.

OPINION BY ADMINISTRATIVE JUDGE BURSKI

Willie White, for himself and as agent for the Sheehan Tin Grubstake, has appealed from a decision of Administrative Law Judge Harvey C. Sweitzer, dated August 31, 1987, declaring the Serpentine Nos. 1-9, Tin Mountain Nos. 1-26, and Diane Nos. 1-6 lode mining claims and the Sheehan Nos. 1-21 placer mining claims null and void for lack of a discovery of a valuable mineral deposit. The subject claims are situated on the Seward Peninsula, approximately 1/2 to 7 miles south and southeast of the Serpentine Hot Springs, within unsurveyed T. 5 N., Rs. 28, 29 W., Kateel River Meridian, Alaska, within the present exterior boundaries of the Bering Land Bridge National Preserve, which is administered by the National Park Service (Park Service) pursuant to section 201(2) of the Alaska National Interest Lands Conservation Act (ANILCA), 16 U.S.C. § 410hh(2) (1988). Subject to valid existing rights, section 206 of

ANILCA, 16 U.S.C. § 410hh-5 (1988), withdrew the lands at issue from location, entry, and patent under the United States mining laws.

The instant controversy was initiated on September 14, 1984, by the filing of a contest complaint by the Bureau of Land Management (BLM), on behalf of the Park Service, seeking a declaration of invalidity with respect to the subject claims on the single ground that "there are not presently disclosed within the boundaries of the mining claims minerals in sufficient quantities and qualities to constitute a valid discovery." The contest complaint also averred, on information and belief, that the owners of the claims were: Willie White, Joe Fowler, Nathanel Hoyle, Lawrence Sheehan, Marvin Jared, Bill Ashcraft, and the Minerals Trust Corporation (MTC). Copies of the contest complaint were served on the above-named parties.

The seven named parties duly filed an answer to the contest complaint, generally denying the charge that the claims were invalid for lack of a discovery. Additionally, however, each of the named parties affirmatively averred that he was merely a beneficiary of the Sheehan Tin Grubstake (Grubstake) which held legal title to the claims. All of the parties identified Willie White as the agent for the Grubstake. All requested a hearing before an Administrative Law Judge to challenge the allegations of the complaint.

Pursuant to the complaint and answer, a 6-day hearing was eventually held in Phoenix, Arizona, in January 1986, before Administrative Law Judge

Sweitzer. From the very outset of the hearing, a controversy arose over the fact that while the land embraced by the claims had been the subject of prior Departmental and statutory withdrawals, 1/ the contest complaint had alleged that the claims were invalid solely because they were not, as a present matter, supported by a discovery. See, e.g., Tr. 47-51, 289, 392-93, 595-96.

Counsel for contestees originally indicated that he was unwilling to stipulate to an amendment to the contest complaint which would additionally charge that the various claims were not supported by a discovery of a valuable mineral deposit as of the date of the relevant withdrawals. See Tr. 595-96. Subsequently, however, counsel indicated that he was uncertain whether he would object to so amending the contest complaint. See Tr. 1,112. Accordingly, it was agreed that, after the close of the hearing and before the filing of briefs, counsel for BLM would formally move to amend the contest complaint and counsel for contestees would thereafter have one week in which to inform Judge Sweitzer whether or not the amendment was agreeable.

Pursuant to this procedure, on February 18, 1986, counsel for BLM submitted a motion to amend the contest complaint to further charge that:

1/ The land embraced by the lode claims was originally withdrawn from mineral entry on Sept. 12, 1972, by Public Land Order No. (PLO) 5250, issued pursuant to sections 17(d)(1) and 17(d)(2)(A), of the Alaska Native Claims Settlement Act, 43 U.S.C. §§ 1616(d)(1), 1616(d)(2)(A) (1988). See 37 FR 18730 (Sept. 15, 1972). The land embraced by the placer claims was originally withdrawn by PLO 5653 and PLO 5654, dated Nov. 16 and 17, 1978, respectively. See 43 FR 59756 (Dec. 21, 1978).

(b) On December 2, 1980, there was not then disclosed within the boundaries of said mining claims minerals in sufficient quantities and qualities to constitute a discovery.

(c) On November 16 and 17, 1978, there was not then disclosed within the boundaries of the said mining claims minerals in sufficient quantities and qualities to constitute a discovery.

(d) On September 15, 1972, there was not then disclosed within the boundaries of the Serpentine Nos. 1 through 9, Tin Mountain Nos. 1 through 26, and Diane Nos. 1 through 6 lode mining claims minerals in sufficient quantities and qualities to constitute a discovery.

Contestees filed no objection to this motion. Accordingly, by Order of June 30, 1986, Judge Sweitzer amended the complaint in conformity with counsel's request. 2/ Thus, the main issues to be decided are whether or not the instant claims are presently supported by a discovery of a valuable mineral deposit and whether they were so when the lands embraced by the claims were withdrawn from entry and appropriation under the mining laws of the United States. 3/

2/ Thereafter, however, by motion filed on Nov. 3, 1986, counsel for BLM moved to further amend the contest complaint to additionally charge that "Each of Sheehan Nos. 1 through 21 association placer mining claims embrace 160 acres and are therefore null and void for being in excess of the 40-acre limitation under Alaska State law (AS 27.10.110 and AS 27.10.140)." On Dec. 18, 1986, counsel for contestees filed a motion to amend their answer and a brief in support thereof. In this brief, contestees did not oppose amendment of the contest complaint though they challenged the legal validity and efficacy of the State acreage limitation on association placer claims. By order dated Mar. 16, 1987, Judge Sweitzer granted the second motion to amend the contest complaint and granted in part and denied in part contestees' motion to amend their answer.

3/ While, as noted in n.2, Judge Sweitzer had amended the complaint to include the charge that the placer claims were invalid because they were in excess of the 40-acre limitation provided by Alaska State law, he declined to rule on this question since he had already determined that the claims were invalid for lack of a discovery. See Decision at 20.

While there was considerable disagreement relating to the showings of value disclosed by the various mineral examinations, certain facts concerning the location of the claims are not in dispute. Prior to the location of the claims at issue, the area of the claims was the subject of a number of geologic and geophysical investigations, two of which are of particular importance with respect to the instant appeal. The first of these is Geological Survey Circular No. 565, entitled "Cassiterite in Gold Placers at Humboldt Creek Serpentine-Kougarok area, Seward Peninsula, Alaska," published in 1968 (Circular No. 565), which discussed the presence of large amounts of cassiterite (also known as tin stone) in Humboldt Creek areas which had been mined for placer gold, concluding, inter alia, that a presumed nearby lode source for the deposit might warrant further investigation. See Exh. A.

The second of these documents, Geological Survey Bulletin 1312-H, entitled "Geology, Mineral Deposits, and Geochemical and Radiometric Anomalies, Serpentine Hot Springs Area, Seward Peninsula, Alaska," published in 1970 (Bulletin 1312-H), recounted the results of surface investigations as well as an airborne magnetic and radiometric survey, which the authors concluded "have disclosed the probable source of placer gold and tin on Humboldt Creek, Serpentine-Kougarok area, Alaska." See Exh. B-1 at H1.

In 1969, Lawrence J. Sheehan, who was then in the process of selling his roofing business in Phoenix, obtained a copy of Circular No. 565. Sheehan had had prior experience with mining, having at one point been the

owner of the Gunsight mine ^{4/} and, in addition to performing the required annual assessment work thereon, had worked for 2 years in the Magma mine in Superior and 2 years in the Kennecott copper mine at Bingham Canyon in the 1940's (Tr. 522). He became interested in the prospect and, in April 1969, traveled to Alaska with his son (Tr. 526).

Once in Alaska, he contacted Alex Stettmeir, who had been a contract pilot for the geologists who had performed the field work for the Geological Survey (Survey) investigations of the area and who took Sheehan and his son to the spots where samples had been taken (Tr. 529, 653-54). Sheehan then proceeded to locate his claims over these areas, as well as other areas in which he found iron stains (Tr. 531), by driving rebars approximately 8 to 10 inches into the ground and then setting 4 by 4's on top of the rebars (Tr. 530). The notices of location were apparently all posted on the claims on June 28, 1969. ^{5/} Sheehan testified that he took a sample at each discovery point (a total of 52 samples) and shipped them from Nome to Phoenix by air freight, but that they never arrived (Tr. 622-23). ^{6/} Sheehan stayed approximately 35 to 40 days at Nome and on the claim site (Tr. 535).

Upon his return to Arizona, he entered into a lease with Goldstrike Mining Exploration and Development Corporation (Goldstrike), which had

^{4/} See United States v. Gunsight Mining Co., 5 IBLA 62 (1972).

^{5/} Thus, all of the location notices for the lode claims (except the Diane No. 1) indicate that the claims were posted on June 28, 1969. See Exh. 7. The location notice for the Diane No. 1 bears no date.

^{6/} There was subsequent testimony as to rumors that the samples had never gotten out of Nome because of resentment by both Native and non-Native Nome residents of outsiders staking claims in the area (Tr. 820-21).

located various mining claims adjacent to the Serpentine and Tin Mountain claims, and then he and Goldstrike entered into an agreement with Rowan Drilling Company (Rowan) in the summer of 1970, granting Rowan the exclusive right to prospect for minerals on the claims owned by both Sheehan and Goldstrike and an 18-month option to purchase the claims under conditions therein provided. See Exh. O. Pursuant to this agreement, various surface activities occurred, including the drilling of at least three diamond drill holes in 1971. See Exh. P. 7/ This agreement was subsequently terminated (Tr. 577).

Thereafter, on September 8, 1976, Sheehan and Hale C. Tognoni visited the claims and located the Sheehan Nos. 1 to 21 association placer claims in an area to the west of the Serpentine and Tin Mountain lode claims and outside the exterior boundaries of the lands withdrawn by PLO 5250. See Tr. 396, 629. The location notices for all of the placer claims indicated that the eight co-locators were: Sheehan, Wilber (Willie) White, Bill Ashcraft, Marvin Jared, Wayne White, Joe Fowler, MTC, and Multiple Use, Inc. See Exh. 8.

Approximately 1 year later, on August 25, 1977, the named locators, with the exception of Multiple Use, Inc., 8/ entered into the Sheehan Tin Grubstake Agreement, whereby the locators, denominated as beneficiaries, transferred all of their respective interests to Willie White as agent,

7/ The results of this drilling program as well as questions relating to the actual situs of the drill holes are examined in greater detail later in this decision.

8/ What became of the interest of Multiple Use, Inc., is not apparent from the record before the Board.

coupled with an interest. ^{9/} The managing beneficiaries also agreed to lease the lands covered by the claims to MTC, as agent for the Miocene Grubstake, which in turn agreed to retain Mineral Economics Corporation (MEC) as operator to expend \$100,000 to acquire any other available mineral rights which might be unitized with the existing claims and to complete a development project in 1977-78. See Exh. R at 3. On October 23, 1978, Willie White, as agent for the Grubstake, quitclaimed the claims to MTC, as new agent for the Grubstake (Exh. S) and on November 15, 1978, the beneficiaries formally accepted White's resignation and designated MTC as the new agent (Exh. T). On June 8, 1982, Willie White again became agent for the Grubstake and was so at the time of the filing of the contest complaint and the hearing herein. See Exh. X; Tr. 470.

The foregoing provides the factual basis relating to the location of the various claims and is not generally in dispute. What is in dispute are the conclusions which can properly be drawn from the various studies

^{9/} We note that, in his testimony, Willie White indicated that the Sheehan Tin Grubstake was formed in 1976. See Tr. 471-72. But, as stated in the text, the Sheehan Tin Grubstake was not actually established until Aug. 25, 1977. It is likely that White was referring to a separate agreement which preceded the location of the Sheehan Nos. 1 to 21 association placer claims. In any event, while White testified that Nathaniel Hoyle was one of the original beneficiaries of the Grubstake agreement (Tr. 471), the record does not bear this out. Hoyle was neither listed as one of the original locators of the placer claims (Exh. 8) nor was he listed as one of the original beneficiaries of the Grubstake agreement (Exh. R at 5, 11). Indeed, the only documentary references to Nathaniel Hoyle's interest occur in Exhibit W, where the interest of "Wayne White or his Assign (Nathaniel Hoyle)" is given as 4.75 percent, Exhibit X, where Hoyle is shown as a beneficiary on the signature page, and Exhibit N wherein a "Nate Hoyel" is listed as a beneficiary in a notice of intention to hold the mining claims, dated Dec. 1, 1983. All of these documents were prepared in 1982 and 1983. It is likely, therefore, that Hoyle ultimately succeeded to the interest of Wayne White, but was not either an original locator or an original beneficiary of the Grubstake agreement.

and examinations of the claims, particularly as they relate to the issue of a discovery as of the time of the hearing and also at the time of the various applicable withdrawals. We turn now to an examination of the testimony received at the hearing as it bears on this question.

The sole witness of the Government was Luther S. Clemmer, a retired BLM mineral examiner, presently self-employed as a consulting mining engineer who had been hired by the Park Service to perform a validity examination of the subject claims. 10/ Clemmer testified that he examined the

10/ Inasmuch as contestees neither moved for dismissal of the contest complaint after completion of the Government's case-in-chief nor challenged the existence of a prima facie case before Judge Sweitzer or this Board, we deem it appropriate to combine our review of Clemmer's direct and rebuttal testimony. We recognize, of course, that contestees do assail the proposition that they bear the ultimate burden of preponderation and also assert that no weight can be ascribed to Clemmer's conclusions as to validity because his testimony in rebuttal clearly showed he was applying an improper standard in determining whether a discovery existed. This latter question is examined in detail, infra.

With respect to the alleged application of an improper standard of discovery, suffice it for our present purposes to note that while, indeed, application of an erroneous discovery test would deprive the mineral examiner's ultimate conclusion as to the lack of discovery of any probative weight (see United States v. Hooker, 48 IBLA 22, 29-31 (1980)), it does not necessarily vitiate the relevance or probative value of the other testimonial and documentary evidence which he provided (see United States v. Pool, 78 IBLA 215, 219 (1984); United States v. Hooker, supra). Moreover, inasmuch as the specific statements of Clemmer upon which contestees focus were made in the course of his rebuttal testimony, they could have no effect on the existence of a prima facie case since this Board has expressly held that that issue is determined only by an examination of the testimony adduced during the Government's case-in-chief. See United States v. Aiken Builders Products (On Reconsideration), 102 IBLA 70, 79-80 (1988) (concurring opinion); United States v. Cople, 81 IBLA 109, 120 (1984). Accordingly, we do not perceive the existence of a prima facie case to be at issue in the instant appeal. We note, in any event, that were it an issue, we would agree with Judge Sweitzer that the testimonial and documentary evidence presented on behalf of the Park Service was sufficient to establish a prima facie case of invalidity and to shift to appellants the burden of overcoming this showing by a preponderance of the evidence. See Lara v. Secretary of the Interior, 820 F.2d 1535, 1542 (9th Cir. 1987); Foster v. Seaton, 271 F.2d 836 (D.C. Cir. 1959).

claims with Fred A. Spicker, a geologist then in the employ of the Park Service, over a 4-day period, spending approximately 26 hours on the ground (Tr. 217). While Clemmer and Spicker had originally believed that both White and Tognoni would be accompanying them on their examination, Clemmer stated he was informed at the last moment that they would be unable to participate (Tr. 20). Contestees had, however, earlier provided them with a map of the claims and reports prepared by Hale C. Tognoni and Robert T. Wilson, a geologist employed by MEC. See Exhs. 32 and 30.

Clemmer testified that while he and Spicker first made a helicopter reconnaissance of the Tin Mountain, Serpentine, and Diane claims, they actually began their sampling activities on the Sheehan placer claims (Tr. 205-06). He described the area of the placer claims as characterized by rounded hills, primarily covered by tundra, with some willows and small brush along the streams (Tr. 68). He noticed some granite outcropping on the Sheehan claims and that there appeared to be gravel in the stream of Reindeer Creek which crossed the Sheehan Nos. 1, 2, and 3, and Hot Springs Creek which crossed the Sheehan No. 9 (Tr. 70, 78). While he observed other streams in the area, none appeared to contain any sand or gravel (Tr. 70-71). There was no evidence of any workings on any of the placer claims (Tr. 90).

Clemmer and Spicker took a total of nine samples from the placer claims (Tr. 74). Five of the samples were taken from the stream gravels on the Sheehan Nos. 1, 2, 3, and 9 (Tr. 77-78). The remaining four samples were taken from smaller drainages and, in the words of Clemmer,

consisted primarily of granite gravel, sand and gravel, pure granite, almost" (Tr. 78).

These samples were first assayed by amalgamation by N. A. Degerstrom, Inc., to test for gold and uranium and splits from the placer samples were sent to the Union Assay Office for further assaying for tin. See Tr. 126; Exhs. 25, 26, and 27. No gold or tin was detected in any of the samples (Exhs. 26, 27), and only two samples from the Sheehan Nos. 10 and 11 showed any detectable presence of uranium (Exh. 25). Clemmer testified that the level of the showings for uranium (0.004% and 0.005%, respectively) were "not very significant," contending that they merely "show the presence of some radioactive mineral" (Tr. 130).

With respect to the lode claims, Clemmer testified that he and Spicker originally conducted an aerial reconnaissance of these claims looking for workings and the like, discovering bulldozer cuts and some monuments (Tr. 205). Insofar as the Diane claims were concerned, Clemmer stated that they took one sample from an outcrop of schist on the north end of the Diane No. 3, but took no other samples because "we couldn't find any veins or mineralized zones or diggings, other than -- well, no diggings or any outcrops of quartz or anything else that we thought would carry any mineralization at all" (Tr. 91).

A number of workings, consisting of bulldozer pits and cuts, were discovered on the Tin Mountain claims (Tr. 106). Clemmer testified that he and Spicker found only one outcrop of bedrock, which he described as

a "quartz blowout," on the Tin Mountain No. 10 (Tr. 108). It had been trenched out approximately 75 feet in length by a bulldozer (Tr. 110-11). While they found some indication of iron stained quartz along the banks of the trench, it had apparently been cut out by the trench (Tr. 108). He took a chip sample from this trench (Tr. 109), even though he did not expect to find much in it, "but it was the best thing we could find to sample and we wanted to give the owner the benefit of the doubt in any way we could" (Tr. 282). Clemmer and Spicker found another trench on the Tin Mountain No. 21, approximately 90 feet in length, and another trench on the Tin Mountain No. 20, which, Clemmer stated, did not expose bedrock. Neither of these trenches were sampled because, according to Clemmer, nothing could be found to sample (Tr. 119-20).

Clemmer and Spicker also examined the Serpentine claims. Clemmer declared that they could find "no outcrops of mineralized bedrock or quartz or no workings, monuments, or anything else" on these claims and, therefore, took no samples from these claims (Tr. 125).

The samples taken from the Diane No. 3 and Tin Mountain No. 10 were sent to the Union Assay Office for assaying for gold, silver, lead, copper, zinc, and tin (Tr. 126-27). The Diane sample showed no gold, silver, lead, copper, zinc, or tin, while the Tin Mountain sample showed 3/10ths oz./ton silver, 0.006% copper, and no gold, lead, zinc, or tin (Exh. 27). Clemmer testified that the silver and copper returns were "insignificant" (Tr. 128).

The Government's mineral report (Exh. 28), written by Spicker and reviewed and approved by Clemmer, also discussed the import of various studies relating to the area of the claims. Specifically, this report referenced Bulletin 1312-H, as well as two reports prepared by MEC, one authored by Hale C. Tognoni (Exh. 32) and another written by Robert T. Wilson, a geologist employed by MEC (Exh. 30). The abstract of the Wilson report, dated December 4, 1978, noted that "[t]he tin mineralization associated with the Serpentine Granite Complex has important similarities to other tin-mineralized areas even though commercial lode deposits of tin have not yet been identified" (Exh. 30, Abstract at 4). In listing the similarities, the Wilson report emphasized the following:

THE ELEMENTS ASSOCIATED WITH THE TIN ANOMALIES in the mineralized zones in the Serpentine Hot Springs area is characteristic of the lead-zinc zone developed in many tin-mineralized areas. The metal suite present in anomalous concentrations in the bedrock areas southeast of the granite complex is characteristic of the fringe or outer areas of mineralization in the district. The implication for the Serpentine Hot Springs area is that the major tin-mineralized areas have not been exposed. It is possible, if not probable, that the principal tin mineralization lies down-dip on the mineralized structures, at depths that are near the granite complex. [Emphasis in original.]

Id. The emphasized portion of the quotation was taken from a 1977 Survey Open File Report by Travis Hudson, entitled "Genesis of a Zoned Granite Stock, Seward Peninsula, Alaska." See Exh. 30 at 21-22. 11/

11/ The quoted language was also replicated, verbatim, in an annual assessment statement filed with BLM on behalf of the claims in October 1979. See Exh. 29. The statement continued:

"Mineral Economics Corporation does not represent that it has outlined any ore reserves in the Sheehan Tin Grubstake's Project; however, we are of

The section of the Wilson report concerning conclusions and recommendations noted, inter alia, that "[t]he possibility of economic tin mineralization at depth below the claim areas should be further investigated" (Exh. 30 at 27). It suggested that a likely place to locate a drill hole was at the site of the "Dike Hill" anomaly, reported by Rowan but not drilled because of logistical problems. The report concluded that "[i]f drilled, it is recommended that if mineralization or granitic basement has not been reached by approximately 2000 feet, that the drill hole should be abandoned" (Exh. 30 at 28).

The abstract from the Tognoni report, written in 1977, recounted the history of the ownership of the claims, noting that "[a]s a result of Miocene entering into the agreement with the Sheehan Grubstake, funding was provided by Miocene for preliminary geo-chemical sampling and a more comprehensive study of the geology to be undertaken by Mineral Economics Corporation" (Exh. 32, Abstract at 2). With respect to future activities, it noted:

M.E.C. recommended a detailed geological mapping program along with a reconnaissance exploratory drilling program for the Sheehan Tin property. It is projected that such a program must take place during the summer months due to extreme weather conditions at this site. The cost of such a program will be in the range of \$250,000.00 depending upon the greatly varying logistical costs in Alaska. The details of the project will be worked

fn. 11 (continued)

the opinion that the area represents a bona fide and truly viable mineral target of potentially major significance and that there is sufficient evidence on the surface for a prudent man to spend his time and money with a reasonable expectation of developing a paying mine."

Id. at 3.

out upon further review of the already collected data by M.E.C. [Emphasis supplied.]

Id.

Based on his mineral examination and his review of the foregoing documents, Clemmer testified that, in his opinion, there was not a mineral showing in sufficient quantity or quality to constitute a valid discovery on any of the claims in question (Tr. 190-91), nor was there at the dates of the respective withdrawals (Tr. 193-95). Clemmer stated that the basis for his conclusion with respect to a lack of a discovery as of the earlier dates was that "there is no evidence on the ground now that anything has ever been done other than a few bulldozer cuts, so there couldn't have been any more mineral showing at that time than there is today" (Tr. 195).

On cross-examination, Clemmer admitted that he and Spicker did not test the claims for the presence of beryllium (Tr. 236), nor did they pan in any of the tributaries of Humboldt Creek (Tr. 237). Amplifying on the basis for his conclusion that there was no discovery, Clemmer stated that "there wasn't anything to study. I mean, no ore reserves, no value, grade, for any reserves so we could not do an economic analysis[,] * * * there was no mineral showings that would even indicate any reserves" (Tr. 246-47).

Clemmer further testified that he had reviewed Bulletin 1312-H and examined the plates and tables which were included in the Bulletin (Tr. 248). Clemmer stated that he and Spicker had not sampled from the sample points indicated in plate 1 because they were unable to locate the sample

points on the ground from the map, though he also admitted that they were not actually trying to sample the points shown on the plate. Rather, "[w]e were attempting to locate mineral outcrops, veins, whatever we could find that would indicate mineral" (Tr. 252).

A disagreement developed between counsel for contestees and the witness over whether or not bedrock was exposed in the area of the lode claims. The following colloquy ensued:

Q. [By Mr. Tognoni] Now, evidently you walked over that same ground and saw no bedrock?

A. Only in a place or two.

Q. So isn't it true, then, that what you're interpreting as bedrock is different than what these persons making the map said?

A. No, I don't think so. This bedrock that they've indicated is under the -- whatever is there, the rubble or the talus, or whatever. It doesn't mean it's exposed.

Q. Where does it say that?

A. It doesn't have to say that.

Q. That's your interpretation[,] then?

A. That's my interpretation for many years.

* * * * *

Q. So whatever the person was calling bedrock in this map, you decided wasn't bedrock, so you didn't sample it. That's basically it?

A. That's absolutely correct, and an examination on the ground shows it's not bedrock. This whole area they show as granite. You don't see that in many places.

(Tr. 253-54).

Counsel for contestees also explored Clemmer's understanding of the requirements for a discovery of a valuable mineral deposit. Thus, Clemmer did not deny that the drilling by Rowan in the area was prudent. Rather, he considered such activities part of the exploration stage rather than the development stage. He expanded on his rationale in the following colloquy:

Q. BY MR. TOGNONI: I think we probably got the thought probably across, but you're saying that when Rowan Mining put their money into this drilling program, that they weren't prudent?

A. No. I believe I said just the opposite. They may be prudent to explore, if I remember correctly my answer.

Q. But not improvement, not to develop?

A. Well, their drilling evidently didn't show enough to encourage them to go further.

Q. Well, isn't the reasonable expectation that you're talking about of developing a paying mine is what they're doing, and the prudent man has to have the reasonable expectation of developing a paying mine? Why else would he put money into it? Why else would Rowan put into it?

A. He may have had an expectation when he started, but after three holes he left for some reason.

Q. Yes, but what he and his people did was examine the same things that you saw on the surface and decided that they would put money into it, and that was their reasonable expectation. So though saying he had the same expectation, you're saying was imprudent on his part to drill those holes?

A. Well, again, I don't think I said he was imprudent to drill the holes, but I think he probably decided he was imprudent to go further, so he didn't go any further.

Q. Or his money ran out?

A. Well, that could be. I would have no way of knowing that.

(Tr. 269-71).

Clemmer expressed his personal view that he did not deem the property to presently constitute a prudent exploration venture, though he admitted that some people might disagree (Tr. 274). He argued that even though such individuals might consider it prudent to further explore the property, this would not mean that they had perfected a discovery of a valuable mineral deposit (Tr. 278). While at one point he indicated it was his view that a paying mine must ultimately result if a discovery exists, he clarified this, noting that "[t]he mine doesn't have to be developed, but there has to be something there that indicates that he has a discovery, something of value" (Tr. 280).

The elements which affected Clemmer's determination of whether a discovery existed were also explored in his rebuttal testimony. He again differentiated between exploration and discovery, arguing that "[t]he mere presence of iron-stained rock and so forth does not, to me at least, indicate any sort of discovery. It's merely pointing to a prospect that might be developed later into something more valuable -- or valuable" (Tr. 988). While Clemmer stated that he did not think that proven ore as defined by Survey 12/ was required

as a prerequisite for discovery, he did declare that _____
12/ In his testimony, Clemmer referenced the requirement that a deposit be sampled on three sides in order to be considered "proven" reserves (Tr. 990). In actuality, however, under Survey Bulletin 1450-A, "Principles of the Mineral Resource Classification System of the U.S. Bureau of Mines and the U.S. Geological Survey," such reserves would be considered to be "probable" reserves, and properly classified as "indicated" reserves under the Survey classification system. See Survey Bulletin 1450-A at A3 n.1.

"Indicated" reserves is therein defined as "reserves or resources for which tonnage and grade are computed partly from specific measurements, samples, or production data and partly from projection for a reasonable distance on geologic evidence. The sites available for inspection, measurement, and sampling are too widely or otherwise inappropriately

"[t]o me, if you have driven drifts into an ore body, you have drill holes where you can give those holes weight, then you can identify proven ore" (Tr. 990). Clemmer also reiterated that he had found bedrock, which he defined as "solid, hard outcrop of rock of one kind or another, fractured certainly, or faulted, but still together" (Tr. 1001), in only one of the bulldozer cuts, and in an outcrop on the Diane claims (Tr. 1001-02).

On cross-examination, the questions of reserves and discovery were revisited:

Q. [By Mr. Tognoni] Well, are you saying that the Tin Mountain has to have proven reserves?

A. To determine the value of a property, you have got to have proven reserves.

Q. To have a discovery of it?

A. Well, I can't -- I think I've defined discovery. In my opinion, you have got to have something of value, something you can find on the ground, something you can sample, something you can hang your hat on; and it generally would involve some ore reserves.

Q. It generally would?

A. Yes.

Q. But when you say "generally," is there a case that it does not have to?

A. No, not and have a valid mining claim.

(Tr. 1064-65).

fn. 12 (continued)

spaced to permit the mineral bodies to be outlined completely or the grade established throughout."

Id.

Counsel for contestees also queried Clemmer extensively with respect to his familiarity with the Board's decision in In re Pacific Coast Molybdenum, 75 IBLA 16, 90 I.D. 352 (1983), insofar as it concerned the proper application of the present marketability test. Clemmer admitted that he was unfamiliar with the decision (Tr. 1079). In response to a hypothetical situation propounded by counsel, Clemmer testified that where uranium claims with established reserves were valid at a \$40-a-pound price for uranium, and the price was now \$8 a pound, he would consider the claims lacking in present marketability if it cost \$20 a pound to mine and market the ore (Tr. 1081).

Counsel for the Park Service explored this question further in his redirect examination:

Q. [By Mr. Mothershead] Now, there's much testimony generated on the fact that you could have a discovery today, but because of changed market conditions, you could wind up without any discovery at all as a result of the market change at some time in the future. I believe you testified to that.

A. Yes.

Q. But in that event, that no way detracts from the fact, does it, that you still have the quantity of ore in the ground which could be mined at a future date for a profit if there's a favorable change in the marketing conditions; is that not true?

A. If economic conditions become favorable, they could mine again, yes, that's true. I think that's happened in a number of cases.

Q. Now, with respect to the Tin Mountain claims, would it be possible that your finding of a nondiscovery could change to discovery if you had considerably more data that would indicate to you that there's a sufficient quantity of ore of good value that a mine could be profitably operated?

A. Yes, if we were at that point in time when that could be shown.

Q. Now, that -- could some of that data be possibly the results of core drilling over a wide area?

A. Yes.

Q. Trenching?

A. To some extent.

Q. Or a shaft?

A. Yes.

Q. But that point has not yet been reached, has it, on the Tin Mountain claims?

A. That's correct.

(Tr. 1098-99).

In a final colloquy with counsel for contestees concerning his perception of the relationship of the prudent man rule to the question of present marketability, Clemmer noted that "the reasonably prudent man to me has to have an expectation of making money, or he's not going to invest his money in a losing proposition, not very long" (Tr. 1106).

The evidence on behalf of the contestees was presented through a number of witnesses. Thus, Lawrence J. Sheehan testified as to the original location of the lode claims in 1969 and the location of the placer claims in 1976, as set forth above. Willie White, managing agent of the Sheehan Tin Grubstake, discussed the formation of the Grubstake, and also related various efforts he had made in attempting to interest third-parties in purchasing the property, beginning in 1982. White testified that he contracted

with Gordon Waters, who employed satellite imaging techniques (generally known as Landsat) to search for mineral deposits. Based on these techniques, Waters apparently delineated various mineral deposits on the claims on a number of maps which he sent to White. See Exh. N. Since Waters did not testify, however, it was unclear exactly what the maps purported to display and whether the areas colored-in on the maps were indications of existing deposits or indicative of areas in which future exploration might be warranted. White did testify that Waters told him that the property was worth \$65,000,000 (Tr. 518). 13/

White also stated that Waters thereafter contacted a party from Midland, Texas, who was interested in spending \$200,000 to drill the perimeters of the property and prove it up and would, if successful, purchase the property for \$10,000,000, but that these negotiations were abandoned when the party contacted BLM officials (Tr. 492). White also contended that subsequent attempts to interest third-parties were frustrated by actions of BLM (Tr. 492-96). White stated that he personally valued the property at \$25,000,000 (Tr. 501).

Brian Tognoni, the mineral land manager for MEC, also testified on behalf of contestees, both with respect to sampling of the placer and lode claims in September 1977 as well as the subsequent arrangements entered

13/ White had earlier testified that Waters charged \$65,000 for his work, a charge which was to be paid upon the sale of the property (Tr. 490). It is unclear from the record whether this charge was a function of the expressed valuation of the property (viz., \$65,000,000).

into by both MTC and the Miocene Grubstake to develop the claims. ^{14/} Concerning the sampling of the claims in 1977, Brian Tognoni testified that the entire sampling process took 6 or 7 days (Tr. 458). Three different sets of samples were taken. One, from the placer claims, consisted of 36 samples which were generally taken from the corners of those claims (Tr. 380; Exh. I).

Two sets of samples were taken from the Tin Mountain lode claims. The first of these consisted of both soil and rock chip samples taken on a square grid encompassing parts of the Tin Mountain Nos. 20, 21, and 22 claims. A total of 121 samples were taken on this grid, each sample 100 feet apart. See Exh. I. An additional 101 samples were taken along a 10,000-foot line commencing outside the claim boundaries and continuing through the Tin Mountain claims, intersecting and crossing parts of the Tin Mountain Nos. 1 through 11, and 14. See Exh. J. Each of these sample points were also 100 feet apart (Tr. 382). Tognoni testified that most of these latter samples were soil samples taken with an auger driven down to the point of resistance, in most instances that being permafrost located one or two feet beneath the surface (Tr. 401, 405).

Insofar as the square grid was concerned, Tognoni testified that approximately half of those samples were rock chip samples, taken from

^{14/} Pursuant to an agreement executed on July 18, 1978, the Miocene Grubstake obtained a 25-percent interest in the Sheehan Tin Grubstake in exchange for \$25,000 in expenditures already made and to be made in the future. See Exh. U. This interest, however, was ultimately transferred back from Miocene to the beneficiaries of the Sheehan Tin Grubstake (Tr. 756).

"outcrops of rock, in-place rock" (Tr. 453). See Exh. L. The various samples were subsequently assayed (Exh. H), and, with respect to the square grid sampling, the results were transcribed onto a series of graphic depictions (Exh. M). The results of this sampling program will be more fully explored below.

While Brian Tognoni testified as to the actual taking of the samples, he did not purport to interpret the results. This was done in the course of the testimony of C. L. (Pete) Sainsbury, contestee's main witness. Sainsbury, holder of a doctorate in geology, was, at the time of the hearing, head of his own corporation, but had, prior to 1972, been employed by Survey in Alaska where he spent 14 years in the geologic mapping of the Seward Peninsula (Exh. E). He was the principal author of numerous works dealing with the geology of the Seward Peninsula, including both Circular No. 565 and Bulletin 1312-H. Additionally, during the period from 1966 to 1972, he was the Survey commodity specialist for tin (Tr. 329). He was, as Judge Sweitzer found, "a recognized expert in tin and the geology of the Serpentine Hot Springs area" (Decision at 9 n.5).

Sainsbury testified extensively as to his activities on the Seward peninsula during his Government employment. Describing the general geol-ogy of the peninsula, he noted that the Lost River Mine, which had closed in 1954, was on "a very well defined metallogenic tin deposit which comes across from the Chukchi Peninsula in Siberia and enters the Seward Penin-sula at the western tip. Cape Mountain continues easterly across the Seward Peninsula encompassing the Lost River tin deposits and eastward to the

Serpentine area and possibly beyond, probably beyond" (Tr. 318). He also noted that, in the past, the only substantial production of tin from placer deposits in the United States had occurred at Potato Mountain, approximately 70 miles west of the claims in question, though he placed the claims within the north central part of the tin province he was defining (Tr. 322).

In discussing the origin of Circular No. 565, he noted that, in 1967, one of his assistants was doing a stream sediment survey in the area and brought back a large can of cassiterite nuggets obtained from the tailings found along Humboldt Creek. Subsequent visits resulted in additional samples and further field work leading to the writing of the circular. While the primary thrust of the circular was to suggest that the marginal gold deposits located in Humboldt Creek might be economic to develop if the cassiterite could be recovered and sold (see Exh. A at 6), the circular also suggested that various faults which were noted crossing Humboldt Creek above the placer cuts "might be a source of the cassiterite" (Exh. A at 4). At the hearing, Sainsbury stated that subsequent studies which he had participated in had served to strengthen his view that the cassiterite was derived from the western tributaries of Humboldt Creek, which traverse the area of the lode claims involved herein (Tr. 331-32).

Sainsbury then described the studies which ultimately led to the publication of Bulletin 1312-H. Initially, he attempted to differentiate what he referred to as "the classical term 'bedrock'" from what he would apply to the tundra area of the Seward peninsula:

Your Honor, in this part of the world we are dealing with a permafrost area. The ground is perennially frozen from just a few inches down. Even in the summer it may only thaw as much as two or three feet. Very often less than that. Because of the underlying frost and the very frigid climate, there's intense frost breaking of the rocks.

In terms of the classical term "bedrock," as would be applied in Southeastern Alaska, we have outcrops, many outcrops of such in that area. But mostly what we have is the bedrock has been broken by frost, slightly loosened so it sits as pieces from a small size to a very large size. But essentially, absolutely in place above where it was frost wedged.

In much exploration in this part of the world, in order to get totally undisturbed rock, you may have to go down as much as 15 or 20 or 25 feet to find what you would call classical bedrock that has not been broken at all by the frost.

In terms of arctic mapping, we all call this frost broken rock that's essentially in place bedrock.

(Tr. 349-50). Sainsbury noted that, in his experience, "if we have out-lined a fault zone, an altered fault zone on the surface, it is always found by trenching that takes the upper few feet of the rock off" (Tr. 351). Thus, while Clemmer had stated that bedrock was observable only on two of the claims (the Tin Mountain No. 10 and the Diane No. 3), Sainsbury asserted that in excess of 80 to 85 percent of the area covered by the lode claims was located on "bedrock" (Tr. 350). See also Tr. 719.

Sainsbury testified that, in conducting their sampling of the area, he and his associates first attempted a stream sediment survey as an initial exploration technique, which disclosed low levels of tin, lead, and zinc (Tr. 353). In order to obtain more dependable information, they then proceeded to panned concentrate studies. These concentrates were then assayed for anomalous levels of those metals normally associated with tin

deposits. ^{15/} The results of these stream sediment and panned concentrate assays were reported in Table 4 and depicted in Figures 2A and 2B of Bulletin 1412-H. Sainsbury noted that six of these samples were taken from tributaries of Humboldt Creek which crossed a number of the Tin Mountain claims, though the concentrations discovered were in lesser amounts than that seen further down Humboldt Creek (Tr. 363).

^{16/}

Sainsbury further testified that, in addition to the stream sediment and panned concentrate samples from tributaries of Humboldt Creek, they also took bedrock and panned concentrate samples from the area west of the tributaries of Humboldt Creek as well as stream sediment samples from Hot Springs Creek, Reindeer Creek, and Schlitz Creek. The assayed values for the bedrock and panned concentrate samples were reported at Table 2, and the values for the stream sediments were reported at Table 3. The sample sites, with indications of the relative degree of anomalous results, were depicted on Plate 1.

^{15/} Anomalous, in this context, means higher than the general background levels which might normally be expected. See Exh. B-1 at H3; Tr. 354. Sainsbury subsequently stated that anything two times background levels would be considered anomalous (Tr. 809). Sainsbury also noted that the suite of minerals normally associated with tin deposits were silver, mercury, arsenic, manganese, cobalt, copper, molybdenum, nickel, lead, antimony, tin, tungsten, and zinc (Tr. 360).

^{16/} Of the six samples which Sainsbury referenced, one (No. 41) showed no anomalous metals at all, another (No. 42) showed only molybdenum at a concentration 3 times greater than background, and two (Nos. 38 and 40) showed both molybdenum and zinc with zinc twice normal background and molybdenum 2 times and 1.4 times above background ranges, respectively. The final two samples (Nos. 37 and 39), each showed the presence of three metals in anomalous amounts. Sample No. 37 showed the presence of anomalous levels of gold, molybdenum, and zinc at levels 7, 2, and 3.3 times background ranges, respectively. Sample No. 39 showed anomalous levels of molybdenum, lead, and zinc at ranges 2, 2, and 3 times normal background. Not one of the samples taken from the area of the lode claims showed the presence of anomalous levels of tin.

In discussing the reason why certain areas were sampled, Sainsbury noted that, owing to the very short field season in Alaska, the samples were, in fact, taken by three different individuals, working together but not in conjunction with each other (Tr. 727). In discussing the selection of sampling sites, the following colloquy occurred between the witness and contestees' counsel, which amplified Sainsbury's earlier assertions with respect to the presence of bedrock in the area:

Q. And how would you choose a spot to sample?

A. Generally, every spot that was sampled was chosen because it had signs of what we geologists call hydrothermal alteration or brecciation, or clay alteration, or quartz, little bits of vein quartz always in a well traceable, easily traceable, linear zone.

Q. Now, Mr. Clemmer seems to be calling that rubble there that is not in place in his, and you seem to be calling it bedrock, and in place. Could you explain the difference?

A. I think we could enlarge upon this in considerable detail. I think when the term bedrock was used, as used in the mining laws of 1870, there were essentially no people who had any experience in the arctic whatsoever, in geology, in geologists.

Therefore, that definition of bedrock would have to have been put together -- would most likely have been put together by people who had no experience in the arctic, or in permafrost areas.

In reports by the Bureau of Mines, and by many U.S. Geological Survey geologists, we will call bedrock, material which we can ascertain with no difficulty. It correctly expresses what is just under the surface, or outcropping at the surface without being broken up at all.

(Tr. 727-28).

Sainsbury also reviewed the results obtained by contestees' sampling program. Reviewing the results of the soil samples from the grid survey,

he noted that a number of the assays showed anomalous results of metals. In particular, Sainsbury noted that one sample assayed at 900 parts per million (ppm) for beryllium and another at 580 ppm. He noted that in the past, stream sediment samples which showed 200 to 220 ppm beryllium "led us to the discovery of the Cape Creek ore body, which has several million tons of very high grade fluorite beryllium rock which was drilled -- subsequently drilled by the U.S. Bureau of Mines" (Tr. 743). 17/

When asked whether the results obtained by his sampling program of the bedrock areas had established a discovery, Sainsbury responded:

A. That's right. We have actually shown bedrock concentrations of an amount that would -- I won't use the term prudent man, but I'll say any exploration geologist would become immediately excited by that amount of mineral and stake it.

Q. And say he's made a discovery?

A. He's made a discovery, that's correct.

Q. In fact, as to this particular area, you claim that you had discovered a valuable mineral deposit?

JUDGE SWEITZER: That sure is leading, Mr. Tognoni. There hasn't been any objection to it, but...

THE WITNESS: I'll stick with our conclusions as expressed in the report, that the values found here would lead, should lead, to exploration, trenching, and probably drilling of some of these zones.

(Tr. 367). Later, when asked whether, considering all of the information which had been developed, he thought that a prudent man would be

17/ In reference to sample 3402 which had assayed at 900 ppm beryllium, Sainsbury subsequently admitted that "I couldn't tell you if it's of commercial value, but it's very close to the amount of beryllium that would be contained in pegmatites that are mined for beryllium" (Tr. 808).

justified in spending his time and money on the placer and lode claims with a reasonable likelihood of success in developing a paying mine, Sainsbury responded:

A. In my opinion, the information available to date does suggest that a paying mine can be developed on the Sheehan lode tin claims.

Q. [By Mr. Tognoni] Is there a likelihood?

A. I think there's a strong likelihood.

Q. Not just a reasonable likelihood?

A. Well, at least reasonable, and to me, as an exploration geologist, it's a strong likelihood.

Q. But you think those same -- not just you as a geologist, but I'm putting you in that position of that prudent man that you have known out there who makes that decision, not you as an expert. Do you think a prudent man with the information here would be actually justified in putting his time and money with a reasonable likelihood of success that a paying mine can be developed?

A. I think several classes of those prudent men would believe that they have a reasonable chance of developing a pay-ing mine on the Serpentine lode claims and the Sheehan Tin lode claims.

(Tr. 799-800).

With respect to the placer claims, Sainsbury noted that:

[T]here are some anomalous metals reported in some of these holes. Silver, even in two parts per million, is always anomalous. Beryllium is generally higher than we would expect to find in areas that had no particular source for beryllium. Arsenic is noticeable. Copper values, except for possibly 50, I would not consider anomalous. Some of the lead values may be anomalous,

25 parts per million. One sample of tin at eight parts per million could possibly be of importance.

(Tr. 793). He testified that beryllium readings of 10 ppm or higher indicated "a source area somewhere shedding beryllium into that drainage" (Tr. 794). He concluded that "the modest amount of work down there does indicate the presence of minerals or metals which would warrant interest by a prudent man to continue development" (Tr. 822).

Sainsbury's views on the question of whether or not a discovery existed on the lode claims were further amplified on cross-examination:

Q. [By Mr. Mothershead] So then you would conclude, based on this sentence, that because you made the findings on the surface you have, there's a much greater expectation, then, of possibly finding a major ore body under those claims -- in those claims?

A. Yes, I would.

* * * * *

Q. [By Mr. Mothershead] And how do we determine for sure whether or not we have a significant ore body that is not disclosed on the surface, other than just surface indicators?

A. Structure, geophysical methods, physical openings into the material, development of the surface information into the information required to completely evaluate the deposit.

Q. And if we do have good readings, what is the ultimate verification of those good readings?

A. By subsurface holes.

Q. By iron core drilling, is that what we call it?

A. Diamond drilling --

Q. Diamond drilling, sorry.

A. -- or by physical openings of substantial size, shafts et cetera.

Q. At what point can we determine that we would indeed have commercial lodes in our claim based upon the favorable surface readings?

A. Sometimes with an initial hole; sometimes with one or two pits even. But normally it requires substantial amounts of development work before you can outline an economic deposit.

(Tr. 870-72). Ultimately, Sainsbury expressly agreed with the statement that "the discovery precedes the time when you know you have a good prospect" arguing that "I could really define a discovery there, would be the first time a piece of silver-rich galena was picked up on the ground that we thought we could see there, there you have immediately made a discovery" (Tr. 901). 18/

In his decision, Judge Sweitzer reviewed the evidence adduced at the hearing and concluded that contestees had failed to establish that a discovery existed within the limits of any of the claims. Before examining the question of discovery, however, Judge Sweitzer disposed of a number of subsidiary legal arguments which contestees had advanced in their pleadings. Thus, Judge Sweitzer rejected contestees' contentions that the mere location of a mining claim establishes a vested property right, that the Government was collaterally estopped to challenge the validity of the claims based on statements appearing in Circular No. 565 and Bulletin 1312-H, and that the

18/ Indeed, Sainsbury declared that "[i]f someone wants to buy a worthless piece of ground or a major ore deposit, that makes it a valuable piece of property" (Tr. 938).

Government bore the ultimate burden of proving a lack of discovery on each of the claims (Decision at 7-13).

Judge Sweitzer then turned to the critical question of discovery. He first recounted the testimony of the Government's mineral examiner, Clemmer, as well as the conclusion of the Wilson report (Exh. 30) that "the major tin-mineralized areas have not been exposed. It is possible, if not probable, that the principal tin mineralization lies down-dip on the mineralized structures, at depths that are near the granite complex." ^{19/} He noted further that the Wilson report expressly concluded that "commercial lode deposits of tin have not yet been identified" (Decision at 16, quoting Exh. 30 at 27). Judge Sweitzer concluded, based on Clemmer's testimony and the Government's documentary submissions, that the Government had made a prima facie case of invalidity and that the burden then devolved upon the claimants to overcome this showing by a preponderance of the evidence (Decision at 16).

Judge Sweitzer next proceeded to review the evidence presented on behalf of the contestees, set forth supra. He noted that Sheehan had located the claims based primarily on a third-party's recollection of where Sainsbury had sampled and that, while Sheehan had taken samples from the lode claims when he located them, all of these samples were lost before they could be assayed. With respect to the Rowan drilling program,

^{19/} Judge Sweitzer also referenced a copy of an annual affidavit of assessment work for the claims which had been filed in 1979 in the Fairbanks District Office, BLM, pursuant to section 314(a) of the Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1744(a) (1988). See Exh. 29. This document repeated, verbatim, the language set forth in the text.

while recognizing that one drill hole (Hole V-6-1) had showed significant mineralization, he also pointed out that "there is no credible evidence to establish on which particular claim(s) such hole(s) may have been drilled" (Decision at 19). He rejected the use of the samples taken by MEC on the ground that, since they were taken after the land had been closed to mineral entry, they could not be used to prove the validity of the subject claims since "[n]o exposure uncovered subsequent to withdrawal can breathe life into a claim that was not already valid at the time of the withdrawal" (Decision at 19). Judge Sweitzer expressly held that "the exposure of mineralization assertedly on the Tin Mountain Nos. 9, 10, 17, 18, 20, 21, and 23, the Serpentine No. 7, and the Diane No. 2 lode mining claims reported in Geological Survey Bulletin 1312-H is insufficient to constitute a discovery" (Decision at 20).

This last conclusion was the result of an analysis of Sainsbury's evidence which Judge Sweitzer had conducted in the course of rejecting contestees' assertion that the Government was estopped from challenging the validity of the claims. After citing various statements by Sainsbury relating to the need for further exploration, Judge Sweitzer concluded that:

Although the findings reported in Bulletin 1312-H (Exh. B-1) may provide physical evidence of mineralization on several claims sufficient to warrant the further expenditure of time and money in efforts to determine whether or not the extent of mineralization might be sufficient to justify developing a profitable mining operation, these exposures in and of themselves do not show the extent of any mineral deposit that may exist on the claims and therefore do not constitute a discovery. Barton v. Morton,

498 F.2d 288 (9th Cir. 1974); United States v. Wood, 51 IBLA 301, 87 I.D. 628 (1980).

(Decision at 12). Based on the foregoing determinations, Judge Sweitzer concluded that contestees had failed to establish, by a preponderance of the evidence, the existence of a discovery on any of the claims at issue and, therefore, the claims were properly determined to be null and void.

On appeal, claimants basically reiterate the arguments which they made before Judge Sweitzer. For reasons which we will set forth, we hereby affirm Judge Sweitzer on all essential points.

Before the Board, claimants again argue that because their mining claims constitute a property interest the effect of the Government contest herein has been to effectuate a taking of their property without compensation in violation of the Fifth Amendment. See Statement of Reasons (SOR) at 9-21. While it is, indeed, true that courts have long recognized that a valid mining claim is "property in the fullest sense of the word" (Forbes v. Gracey, 94 U.S. 762, 767 (1876)), the mere location of a mining claim on Federal land, absent a discovery, vests no rights in the locator as against the United States. 20/ See Best v. Humboldt Placer Mining Co., 371 U.S.

20/ It is, of course, true that the location of a mining claim, unsupported by a discovery, may, nevertheless, afford a claimant protection under the doctrine of pedis possessio against subsequent intrusions of others while he remains in continuous, exclusive occupancy and diligently attempts to make a discovery (see generally Union Oil Company of California v. Smith, 249 U.S. 337 (1919)). This doctrine, however, does not apply as against the United States. See, e.g., Cameron v. United States, 252 U.S. 450, 456 (1920); United States v. Williamson, 45 IBLA 264, 277-78, 87 I.D. 34, 41-42 (1980); R. Gail Tibbetts, 43 IBLA 210, 218-19, 86 I.D. 538, 542-43 (1979).

334, 336 (1963). While we examine the questions relating to the existence of a discovery below, suffice it for our present purposes to note that, unless appellants can establish that the claims are supported by discovery, there can be no unconstitutional taking of their possessory interests. 21/

Appellants also repeat their assertion that the Government is collaterally estopped from asserting that the claims are invalid. As noted above, this argument is based on their assertion that Circular No. 565 and Bulletin 1312-H effectively established that sufficient mineralization existed to constitute a discovery and that the Government is estopped from challenging the conclusions contained in these documents (Reply at 8-9). This argument is, we believe, flawed in a number of aspects. 22/

[1] First of all, as we have noted on numerous occasions, the Board has well-established rules governing consideration of estoppel questions. The following discussion taken from our decision in Ptarmigan, Inc., 91 IBLA 113, 117 (1986), aff'd, Ptarmigan, Inc. v. United States, No. A88-467 Civil (D. Alaska, filed Mar. 30, 1990), appeal filed, No. 90-35369 (9th Cir. Apr. 29, 1990), synthesizes the Board's approach:

21/ Even assuming that appellants' claims were supported by discovery, they would not possess either equitable or legal title to the lands in question, however. The Federal courts have consistently held that these titles pass to mineral claimants only upon the payment of the purchase price established by Congress for the land. See Black v. Elkhorn Mining Co., 163 U.S. 445, 450 (1896); Benson Mining & Smelting Co. v. Alta Mining & Smelting Co., 145 U.S. 428, 430 (1892); Freese v. United States, 639 F.2d 754, 758 (Ct. Cl. 1981); United States v. Rizzinelli, 182 F. 675, 682-83 (D. Idaho 1910).

22/ Moreover, insofar as Circular No. 565 is concerned, this contention is actually contradicted by appellants' SOR, wherein they aver "[c]ontrary to language in the Decision herein, the placer discovery on which Sainsbury reported in his 'Circular 565' is not the discovery substantiating Appellants' claims" (SOR at 13 (emphasis added)).

First, we have adopted the elements of estoppel described by the Ninth Circuit Court of Appeals in United States v. Georgia-Pacific Co., 421 F.2d 92 (9th Cir. 1970):

Four elements must be present to establish the defense of estoppel: (1) The party to be estopped must know the facts; (2) he must intend that his conduct shall be acted on or must so act that the party asserting the estoppel has a right to believe it is so intended; (3) the latter must be ignorant of the facts; and (4) he must rely on the former's conduct to his injury.

Id. at 96 (quoting Hampton v. Paramount Pictures Corp., 279 F.2d 100, 104 (9th Cir. 1960)). See State of Alaska, 46 IBLA 12, 21 (1980); Henry E. Reeves, 31 IBLA 242, 267 (1977). Second, we have adopted the rule of numerous courts that estoppel is an extraordinary remedy, especially as it relates to the public lands. Harold E. Woods, 61 IBLA 359, 361 (1982); State of Alaska, supra. Third, estoppel against the Government in matters concerning the public lands must be based on affirmative misconduct, such as misrepresentation or concealment of material facts. United States v. Ruby Co., 588 F.2d 697, 703 (9th Cir. 1978); D. F. Colson, 63 IBLA 121 (1982); Arpee Jones, 61 IBLA 149 (1982). Finally, we have noted that while estoppel may lie where reliance on Governmental statements deprived an individual of a right which he could have acquired, estoppel does not lie where the effect of such action would be to grant an individual a right not authorized by law. See Edward L. Ellis, 42 IBLA 66 (1979).

It is, moreover, axiomatic that the existence of a crucial misstatement of a material fact upon which an individual relied to his or her asserted detriment is a prerequisite to the invocation of estoppel, since it is precisely such detrimental reliance which justifies estoppel in the first instance. And it is on this point that appellants' position is most critically lacking.

We note that nothing in either Circular No. 565 or Bulletin 1312-H supports appellants' implicit assertion that a valuable mineral deposit

exists on each and every mining claim which they have located. 23/ Any claim of reliance with respect to Bulletin 1312-H is impossible, insofar as the original location of the lode claims is concerned, since it was published in 1970 and the lode claims were located on June 28, 1969. And, while Sheehan did testify that it was his reading of Circular No. 565 which led to his decision to travel to Alaska to locate the claims, the fact of the matter is that this Circular recounted field examinations of areas which are not within the limits of any of the claims. See Tr. 782.

Thus, the circular notes that several high-angle faults similar to those which controlled the gold deposits of the Kougarok River crossed Humboldt Creek "above the placer cuts from which the cassiterite was recovered," but expressly declared that "[t]hese faults were plotted from aerial photographs; they were not examined on the ground" (Exh. A at 4). The circular's conclusion that these faults "might be a source of the cassiterite" would scarcely give Sheehan a rational basis upon which to conclude the Government was assuring him that his claims were supported by a discovery. Nor does the subsequent statement that "[a] random grab sample of bulk concentrate * * * was found to contain slightly more than 60 percent tin, and thus meets the requirements for a high-grade saleable tin concentrate" (Exh. A at 5), provide any sustenance to such a conclusion, since this sample was not taken from any of appellants' claims.

23/ In this regard, we would point out that Sainsbury's testimony as to the conclusions which he drew from his examinations of the area is totally irrelevant to the question of estoppel. Sheehan testified that he had not met Sainsbury until the hearing (Tr. 658-59). Thus, any claim of reliance with respect to the location of the lode claims must be limited to the documents themselves and not to Sainsbury's personal views of the conclusions reached which are not reflected in those documents.

Thus, we think it clear that, as a matter of fact, no estoppel could arise with respect to Sheehan's actions in locating the lode claims, nor can any estoppel be premised on anything in Circular No. 565, either at the time of location of the claims or thereafter. There remains only the possible assertion that subsequent actions of appellants were taken in reliance on Bulletin 1312-H. Not only is this difficult to credit for the elementary reason that one would suppose that, having located their own claims, appellants based their subsequent actions on their assessment of the validity of their claims, but the transcendent reality is that a reading of Bulletin 1312-H simply does not support appellants' broad assertion that officials of the United States agreed that there was a discovery on each and every or, indeed, on any of their claims.

We noted above that Judge Sweitzer rejected this contention, holding, inter alia, that while Bulletin 1312-H, as well as Circular No. 565, might provide evidence of the existence of mineralization within the area of the claims, they were clearly inadequate to establish the extent of any mineral deposit which might exist within the limits of any claim and therefore could not, in and of themselves, establish the existence of a discovery. In this regard, we think Judge Sweitzer's analysis was clearly correct.

Thus, the abstract of the report does not aver that a discovery had been made or that an ore body had been delineated. Rather, it notes that "[g]eologic mapping, analyses of samples of bedrock, and geochemical studies have disclosed the probable presence of placer gold and tin on Humboldt Creek,

Serpentine-Kougarok area, Alaska, and have shown mineralized bedrock in several areas on the east side of the granite stock at Serpentine Hot Springs" (Exh. B-1 at H1). While the abstract does report that "two mineralized and altered fault zones were sampled in detail," the bulletin never referred to these areas as constituting a discovery or even as embracing an ore body. 24/

Moreover, there is, as this Board explained in United States v. Feezor, 74 IBLA 56, 90 I.D. 262 (1983), a substantial difference between "a mineral deposit" and "a valuable mineral deposit." Thus, the Board noted:

As modern adjudications have developed, the latter phrase has come to mean a mineral deposit of sufficient quantity and quality so as to justify a prudent man in expending both labor and money in developing a paying mine. Where the term "mineral deposit" is used, it merely means, in the context of a lode claim, that a mineralized area in a vein or lode has been disclosed. It does not necessarily mean that a valuable mineral deposit has been exposed.

Id. at 75, 90 I.D. at 272-73.

A reading of Bulletin 1312-H leads ineluctably to the conclusion that the terms "mineralized bedrock" and "mineralized and altered fault zones" _____
24/ As the Board has recognized in the past, geologists and others involved in the mining industry will often use the term "ore" to refer to a mineralized deposit which can be marketed at a profit. See United States v. Whittaker, 95 IBLA 271, 282 n.8 (1987). Thus, while the failure of the bulletin to utilize the term "discovery" is, perhaps, understandable given the absence of any mining claims as of the time of the field investigation (Tr. 785), the similar failure to use the term "ore" or to otherwise assert that a mineral deposit capable of exploitation had been disclosed is not so easily explained.

and "mineralized areas" which were employed therein refer to the disclosure of a mineral deposit and do not support the assertion that a valuable mineral deposit had been discovered. Indeed, this point is clearly made in the textual discussion of the two mineralized fault zones where, having noted that certain samples "were collected over a width of 200 feet and a length of 1,000 feet along the flat saddle, where frost action has completely shattered bedrock to create a veneer of surface rubble," the bulletin then admits that "nothing can be stated as to the width of possible veins that exist within the altered zone beneath the frost-shattered rock" (Exh. B-1 at H8 (emphasis added)). Having expressly eschewed the ability to predict the width of any possible veins lying beneath the surface, the bulletin could not also have been simultaneously asserting that a discovery, within the meaning of the mining laws of the United States, had been shown to exist based on its sampling of the surface since there would be no theoretical basis upon which to predicate any estimates of the quantity of mineralization.

In any event, even had officials of the Government unequivocally declared in these publications that a valuable mineral deposit was shown to exist throughout the area covered by appellants' claims, the United States would not be estopped from challenging appellants' assertion that the claims were valid and, upon a showing that the claims were not, in fact, supported by a discovery, obtaining a declaration that the claims were null and void. As the Supreme Court noted long ago, speaking through Justice Van Devanter,

[T]he execution of the laws regulating the acquisition of rights in the public lands and the general care of these lands is confided to the land department, as a special tribunal; and the Secretary of the Interior, as the head of the department, is charged with seeing that this authority is rightly exercised to the end that valid claims may be recognized, invalid ones eliminated, and the rights of the public preserved.

Cameron v. United States, 252 U.S. 450, 459-60 (1920). Continuing, the Court noted that:

A mining location which has not gone to patent is of no higher quality and no more immune from attack and investigation than are unpatented claims under the homestead and kindred laws. If valid, it gives to the claimant certain exclusive possessory rights, and so do homestead and desert claims. But no right arises from an invalid claim of any kind.

Id. While cautioning that the Department's power to strike down claims could not be exercised arbitrarily, the Court expressly declared that "but so long as the legal title remains in the government it does have power, after proper notice and upon adequate hearing, to determine whether the claim is valid and, if it be found invalid, to declare it null and void." Id.

The continuing authority of the Department to inquire into the validity of claims so long as legal title remains in the Department has been repeatedly reaffirmed by the courts. See, e.g., Schade v. Andrus, 638 F.2d 122, 124-25 (9th Cir. 1981); Ideal Basic Industries, Inc. v. Morton, 542 F.2d 1364, 1367 (9th Cir. 1976). Invocation of estoppel in situations in which the record establishes that a claim is not supported

by a discovery of a valuable mineral deposit would inevitably lead to the issuance of patents for public land where the requirements of the law have not been met. It would ultimately result in the granting of a right not authorized by law to the detriment of the rights of the public which the Department is charged to protect. Estoppel, in such circumstances, simply cannot lie.

The central question, of course, remains whether the evidence establishes that a discovery exists on each of the claims. Appellants argue that the claims clearly meet the "prudent man test" as delineated by Federal Court decisions, criticizing reliance in the decision on the "marketability test." Subsidiary thereto, appellants contend, relying on two decisions issued in the early 1900's (Charlton v. Kelly, 156 F. 433 (9th Cir. 1907); Lange v. Robinson, 148 F. 799 (9th Cir. 1906)), that "for the purposes of the mining laws the term 'exploration' is synonymous with 'development'" (SOR at 10). Appellants also assert that, in any event, the evidence adduced at the hearing establishes that the marketability test has been met, contending, inter alia, that the mineral examination and evidence presented by the Government were of no probative effect, and specifically assailing the testimony of Clemmer as to the absence of a discovery. Our review of the evidence adduced at the hearing, however, convinces us that the evidence, considered in its totality, fails to establish the existence of even a mineral deposit within the limits of the majority of the claims and clearly fails to establish the existence of a valuable mineral deposit within any of the claims.

[2] Initially, it is useful to briefly describe the "present marketability" test as defined by recent Departmental adjudications. As we noted in In re Pacific Coast Molybdenum, supra:

"Present marketability" has never encompassed the examination of either cost or price factors as of a specific, finite moment of time, without reference to other economic factors. Rather, the question of whether something is "presently marketable at a profit" simply means that a mining claimant must show that, as a present fact, considering historic price and cost factors and assuming that they will continue, there is a reasonable likelihood of success that a paying mine may be developed.

Id. at 29, 90 I.D. at 360. Accord United States v. Shiny Rock Mining Corp., 112 IBLA 326 (1990); United States v. Whittaker, 95 IBLA 271 (1987). Admittedly, Clemmer's discussion of the concept of present marketability arguably exhibited a misunderstanding of the application of the present marketability test in recent adjudications (see Tr. 1078-85), and, to the extent that issues relating to present marketability were involved in the instant case, the Board would necessarily be forced to discount his conclusions as to the claims' validity. See United States v. Pool, 78 IBLA 215, 219 (1984); United States v. Hooker, 48 IBLA 22, 29-31 (1980). But, as we view the record established at the hearing, the "present marketability" component of the discovery test is not really involved in the instant case. Rather, quite apart from any questions as to whether appellants have met the present marketability test, the record fails to establish that they have met the prudent man test in its most unvarnished form.

Application of the present marketability test presupposes the established existence of a mineral deposit and is utilized as an aid in determining whether it is a valuable mineral deposit such that a reasonable prospect exists for its successful exploitation. In other words, questions as to the marketability of a mineral deposit necessarily assume the existence of the mineral deposit. The present record, however, discloses little evidence that a mineral deposit has been exposed on any of the claims at issue, and none, at all, that a valuable mineral deposit has been so exposed.

In examining the question of whether and to what extent appellants have shown the existence of a valuable mineral deposit within the limits of their claims, we will first review the testimony of Sainsbury, upon which appellants place particular reliance. In the excerpts of his testimony set forth above, Sainsbury clearly asserted that, in his opinion, the Diane, Serpentine, and Tin Mountain claims were supported by a discovery of a valuable mineral deposit. See, e.g., Tr. 367, 799-800. Yet, at the same time, Sainsbury also admitted that it was not possible to determine the quantity of the deposit without diamond drilling (Tr. 898). The law, however, is quite clear that without some indication that mineral values exist in sufficient quantity to warrant an effort to extract them, it is impossible to meet the prudent man test of discovery.

[3] As long ago as its decision in Chrisman v. Miller, 197 U.S. 313, 322 (1905), the Supreme Court recognized this requirement. In Chrisman, the Court quoted with approval Justice Field's declaration in his dissenting

opinion in Iron Silver Mining Co. v. Mike & Starr Gold & Silver Mining Co., 143 U.S. 394, 412 (1892) that: "[T]he mere indication or presence of gold or silver is not sufficient to establish the existence of a lode. The mineral must exist in such quantities as to justify expenditure of money for the development of the mine and the extraction of the mineral." To the same effect are more recent Federal and Departmental decisions. See, e.g., Thomas v. Morton, 408 F. Supp. 1361, 1371-72 (D. Ariz. 1976), aff'd, 552 F.2d 871 (9th Cir. 1977); Converse v. Udall, 399 F.2d 616, 620-21 (9th Cir. 1968), cert. denied, 393 U.S. 1025 (1969); United States v. Weekley, 86 IBLA 1, 6 (1985); United States v. Larsen, 9 IBLA 247, 262 (1973), aff'd, Larsen v. Morton, No. 73-119 TUC-JAW (D. Ariz. Oct. 24, 1974).

Moreover, Sainsbury's conclusions were premised on the results of his own sampling and that undertaken by appellants in 1977. While there is no gainsaying Sainsbury's expertise as an exploration geologist nor his personal knowledge of the area of the claims, we do not believe that his sampling provides a sufficient basis on which to conclude that a discovery, within the meaning of the mining law, exists within the limits of any of the claims.

Initially, we would point out that the geochemical investigations undertaken by Sainsbury were simply not designed to make a discovery but rather were intended to establish whether sufficient mineralization might exist to warrant further exploration. Indeed, this is the general aim of geochemical methods of exploration. Thus, it has been noted that:

Through systematic collection and analysis of appropriate samples, geochemical "anomalies" (either of the actual element being sought, or of an "indicator" element known to be commonly associated with the element being sought) can be detected. Such geochemical anomalies when integrated with geological and other information, frequently are a great aid in the selection of target areas. [Emphasis supplied.]

SME Mining Engineering Handbook (1973) at 5-8. Sainsbury testified as much when he stated that "[o]ur purpose was first to locate the source of the tin, and then to establish that there was metalization along these altered zones. At that point the U.S. government is supposed to stop and private industry is supposed to take over" (Tr. 366).

Admittedly, Sainsbury presented this testimony immediately prior to his assertion that "any exploration geologist would become immediately excited by that amount of mineral, and stake it * * * [and say] he's made a discovery" (Tr. 367). But, as we noted above, Sainsbury made these assertions that a discovery existed while at the same time admitting that it would be impossible to make any estimate as to the quantity of mineralization without further exploration (Tr. 898). Regardless of what an exploration geologist might conclude, however, a discovery within the meaning of the mining laws cannot be said to exist absent some evidence of the extent of mineralization.

[4] Moreover, there is another intrinsic problem with Sainsbury's testimony as it relates to the requirements of a discovery. As this Board has noted on numerous occasions, while recourse to geologic inference to establish the quantity and quality of a mineral deposit

is permitted, geologic inference cannot be used to establish the existence of a mineral deposit. See, e.g., United States v. Feezor, supra; United States v. Larsen, supra. Thus, this Board stated in Larsen:

While geologic inference may not be relied upon to establish the existence of a mineral deposit, it may be accepted as evidence of the extent of a deposit. That is, where ore has been found, the opinions of experts, based upon knowledge of the geology of the area, the successful development of similar deposits on adjacent mining claims, deductions from established facts--in short, all of the factors which the Department has refused to accept singly or in combination as constituting the equivalent of a discovery--may properly be considered in determining whether ore of the quality found, or of any mineable quality, exists in sufficient quantity to justify a prudent man in the expenditure of his means with a reasonable anticipation of developing a valuable mine.

Id. at 262.

[5] We set forth above Sainsbury's extensive comments relating to the nature of the permafrost environment. Sainsbury clearly was of the opinion that the "rubble" to which Clemmer referred was actually "rock in place" and constituted "bedrock." This is a critical point since the sine qua non of a discovery is the exposure of a mineral deposit and, to the extent that the rocks and specimens 25/ which he sampled are considered to be detrital deposits, they cannot be considered supportive of a lode claim since a placer discovery (even assuming it exists) will not support a lode location. Cole v. Ralph, 252 U.S. 286, 295 (1920); United States

25/ Of the 23 samples taken from the 11 sample sites arguably within the limits of the claims, 7 were chip samples, 7 were panned concentrates, 7 were grab samples, and 2 were selected hand specimens. In point of fact, the highest silver assays (5,000 ppm) were obtained from the selected hand specimens taken from float. See Exh. B-1, Table 2, Samples AKd-249F, AH-75A.

v. Haskins, 59 IBLA 1, 88 I.D. 925 (1981), aff'd, Haskins v. Clark, No. CV-82-2112-CBM (C.D. Cal. Oct. 30, 1984).

Under 30 U.S.C. § 23 (1988), lode locations may be made "upon veins or lodes of quartz or other rock in place." Thus, absent the exposure of such "veins or lodes of quartz or other rock in place," there can be no valid lode claim. Yet, it is clear from the testimony presented on behalf of appellants that they are not contending that the entire surface covering their lode claims consists of a vein or lode. On the contrary, the evidence is that such veins or lodes as may exist will be found at some depth beneath the surface. See, e.g., Exh. 29; Exh. 30 at 27-28; Exh. B-1 at H8; Tr. 351, 870, 898. Rather, appellants' contention is that the surface rubble or "frost broken rock" is "essentially in place" (Tr. 350).

The question of what constitutes rock "in place" has received a not inconsiderable amount of judicial attention. Thus, in Stevens v. Williams, Fed. Cas. No. 13,414, cited in Lindley on Mines § 301 (3d ed. 1914), Judge Hallett stated that "[a]s to the meaning of these words 'in place,' they seem to indicate the body of the country which has not been affected by the action of the elements; which may remain in its original state and condition as distinguished from the superficial mass which may lie above it." Similarly, in Meydenbauer v. Stevens, 78 F. 787 (D. Alaska 1897), Judge Delaney charged the jury:

By the phrase "in place" congress evidently intended to make a distinction between rock or quartz held in place by the adjoining country rock and bunches or blotches of quartz or rock simply

lying or resting upon the earth's surface without any walls, and also pieces or boulders detached from the earth's crust, commonly called "float," and usually found in the mountain gulches and along the beds of streams in a mineral country.

Id. at 790.

It is unnecessary for us to decide if broken rock held in place by permafrost constitutes rock "in place" within the meaning of 30 U.S.C. § 23 (1988). The testimony adduced at the hearing was to the effect that the permafrost began a foot or two beneath the surface (Tr. 401, 405, 728-29) whereas the source deposit would normally be located below the permafrost line. Appellants' basic theory is that the frost riven rock is held "in place" by the permafrost, yet even Sainsbury admitted that this was not completely true since "[t]he surface, the few surface inches, may be moving slightly" (Tr. 728), and also acknowledged that, in the summer, the surface would thaw "two or three feet" (Tr. 349). But, in point of fact, the samples were taken from this surface. Thus, Sheehan described the sampling sites to which he had been taken by Stettmeir:

Q. [By Mr. Mothershead] And once you went to these sites how were they -- how did they appear on the ground?

A. Well, the ground was -- they were in areas where the ground was broken, and they were --

Q. Broken, how do you mean broken; cleared?

A. What did you say?

Q. Cleared of rubble, or --

A. Oh, no. Where it looked like somebody had dug in a little bit.

Q. So it was merely kind of a digging in of the surface there that was indicated?

A. No, it wasn't dug down deep, it was if somebody had moved the rock around. It wasn't a pit.

(Tr. 653). Nothing in either Bulletin 1312-H or Sainsbury's testimony is to the contrary. Thus, regardless of whether or not it could be argued that broken rock entrapped in permafrost constitutes rock "in place," Sainsbury's sampling could not be said to have exposed such a deposit since the sampling of the surface rubble did not penetrate into the permafrost.

We wish to make it crystal clear that the foregoing is not meant to deprecate in any way Sainsbury's sampling program or the geological (as opposed to legal) extrapolations which he made from the results. The simple fact of the matter, however, is that Sainsbury's purpose was not to make a discovery of a valuable mineral deposit as defined by the mining laws, but rather to determine the "probable source of placer gold and tin on Humboldt Creek" (Exh. B-1 at H1). Having shown the existence of mineralization along two altered zones in the area, his role ceased, leaving it to private industry to take over (Tr. 366). We find ourselves in total agreement with Judge Sweitzer that, as a result of Sainsbury's endeavors, an area worthy of further exploration was clearly delineated. We can-not agree with appellants that Sainsbury's endeavors were sufficient to

establish a legal discovery on any of the claims, much less the ones from which he did not even take a sample. 26/

[6] We recognize, of course, that appellants assert that "for the purposes of the mining laws the term 'exploration' is synonymous with 'development,'" and further contend that the various Board precedents which have rejected this assertion "fly directly in the face of Court admonishments" to that effect (SOR at 10). But, save for the two turn-of-the-century cases cited in support thereof, courts have uniformly rejected appellants' attempt to equate evidence which would justify further exploration with evidence sufficient to support a discovery.

The mining industry, itself, has no difficulty in distinguishing between prospecting, exploration, and development. Thus, Peele defines _____
26/ It is even unclear which claims are located over sampling spots. Plate 1 of Exhibit B-1 is drawn on too small a scale to correlate sample sites with individual claims. The same is true of Exhibit B-2, which is an enlargement of Plate 1 with the outer perimeter of the claim groups depicted thereon. Admittedly, Exhibit J purports to locate Sainsbury's sampling sites on specific claims, but the record fails to establish the basis for these locations. Brian Tognoni testified that Exhibit J was prepared in September 1977, based on the topography shown in Plate 1 (Tr. 440). The problem, however, is that Plate 1 is drawn on a scale of 1" to a mile. Some of the circles used to delineate sample sites and which vary in size based on the sum of anomalous metals are one-eighth inch (i.e., 660 feet) in diameter. The actual sampling point could be 330 feet in any direction from the center of the circle. Since each lode claim is limited by statute to a maximum width of 600 feet, it is obvious that exact placement of the sampling sites within specific claim boundaries based on topography alone is not possible. This is made graphically clear on Exhibit J where the distance between Survey sample sites 58 and 60 is shown to be approximately 800 feet and the distance between sample sites 56 and 59 is approximately 1,580 feet, yet the text of Exhibit B-1 states that this group of samples was "collected over a width of 200 feet and a length of 1,000 feet" (Exh. B-1 at H8).

prospecting as "the search for minerals," exploration as "the work of exploring a mineral deposit when found * * * undertaken to gain knowledge of the size, shape, position, characteristics, and value of the deposit," and "development" as "the driving of openings to and in a proved deposit, for mining and handling the product economically." Peele, Mining Engineers' Handbook 10-03 (3d ed. 1941). Nor have courts exhibited any inability to differentiate between the concept of exploration and development. Indeed, in Converse v. Udall, supra, the Court of Appeals for the Ninth Circuit not only discussed the basis for the differentiation, it examined the very court cases urged by appellants as compelling a different result:

Converse attacks the Secretary for drawing a distinction between "exploration," "discovery," and "development." But the authorities we have cited show that there is a difference between "exploration" and "discovery." (See, e.g., Cole v. Ralph, supra, 252 U.S. at 294, 296, 307, 40 S.Ct. 321.) If the latter word were taken literally, then the finding of any mineral would be a "discovery." Webster, 2d Ed., defines "discover" as "to make known the identity of, * * * by laying open to view, as a thing hidden or covered, to expose; to disclose; to bring to light." But, as we have seen, that alone is not enough. On the other hand, Webster defines "explore" as "to seek for or after, to strive to attain by search." This is exactly what a prospector does, both before he finds the first "indications * * * of the existence of lodes or veins" (United States v. Iron Silver Mining Co., supra, 128 U.S. at 683, 9 S.Ct. at 199) and thereafter until he finds enough mineralization to meet the legal test of discovery. It is true that some of the cited cases say that "development" and "exploration" mean the same thing (Charlton v. Kelly, supra, 156 F. at 436), or speak of "exploration" after discovery (Lange v. Robinson, supra, 148 F. at 804). But in each of these cases, the court was talking about further work to be done after a sufficient discovery had been made, work which could be called "exploration" or "further exploration," or could also be called "development." They do not support the attack here made upon the distinction between work which must necessarily be done before a discovery, and the discovery itself, which is what the Secretary

talks about when he distinguishes between "exploration" and "discovery." [Emphasis in original.]

Id. at 620-21. Accord Barton v. Morton, 498 F.2d 288, 290-91 (9th Cir. 1974), cert. denied, 419 U.S. 1021 (1974); Multiple Use, Inc. v. Morton, 353 F. Supp. 184, 193 (D. Ariz. 1972), aff'd, 504 F.2d 448 (9th Cir. 1974); see also United States v. New Mexico Mines, Inc., 3 IBLA 101 (1971). There is, in short, no basis for appellants' assertion that exploration and development mean the same thing in mining law.

We thus conclude that, while Sainsbury's studies and testimony might well engender an interest in further exploration of the area, they are insufficient, in themselves, to support a determination that any of the lode claims, much less all of the lode claims, were supported by a discovery as of the date of the withdrawal (September 12, 1972), the date of the hearing, or the present time. The question then is whether appellants submitted any other probative evidence supporting their assertion of a discovery on each of the lode claims.

[7] We note that the samples which Sheehan took were lost in transit and never assayed. Moreover, his own investigation was limited primarily to the sites identified by Stettmeir as the areas in which Sainsbury had taken samples. Thus, nothing in his testimony advanced appellants' assertions of a discovery on each of the claims.

Much controversy has centered around the drilling of Hole V-6-1 by Rowan Drilling in July 1971. This hole was one of three drilled by Rowan

pursuant to an agreement between appellants and holders of claims adjacent to the Serpentine and Tin Mountain lode claims. Hole V-6-1 was drilled to a depth of 140 feet and, at a depth of 122 feet, encountered a vein approximately 3 inches wide which included "a 1/2 inch wide piece of highly mineralized vein material [which] contained 1.10% tin" (Exh. P at 2). Judge Sweitzer noted that "[a]though some evidence suggest[s] that some of the core holes drilled by Rowan Drilling Company may have been drilled on the subject lode claims (Tr. 554), there is no credible evidence to establish on which particular claim(s) such hole(s) may have been drilled" (Decision at 19). Accordingly, Judge Sweitzer held that the core hole values could not be utilized to support a discovery on any of the claims.

The problem in determining where this hole was drilled is occasioned by the fact that no precise location is provided for this hole in Exhibit P. Exhibit P consists of part of an affidavit of assessment work performed for the 1971 assessment year 27/ and a written report presumably prepared by Rowan after the drilling. In discussing the character of the work performed, the assessment work affidavit noted "a diamond drilled core hole, near bulldozer trench cut in August 1970, was drilled to total depth of 140 feet and cores assayed" (Exh. P). The written report noted that "Hole V-6-1 was collared 630 feet N 30° W from the claim marker at the NE corner of North Spur lode #1 * * * slightly north of the exposure from which tin bearing samples were taken in 1970."

27/ That the first page of Exhibit P is part of the annual assessment statement filed for 1971 can be seen by comparing it to that filing which is contained in Exhibit N.

Appellants contend that this hole was drilled within the limits of the Serpentine and Tin Mountain claim based primarily on Sheehan's conclusion that, since all of the bulldozer trenches were contained within the limits of his claims, it must have been located within his claim (Tr. 576). 28/ There are a number of problems with this theory.

First of all, there is simply no evidence in the record that all of the trenches were located within the subject claim group. While Clemmer did identify three bulldozer cuts located on the Tin Mountain Nos. 10, 20, and 21 claims, his testimony was, by its very nature, limited to the claims at issue and he never asserted that these were the only bulldozer cuts in the general area.

Moreover, simple reliance on the assertion that the hole was drilled near a bulldozer cut ignores the fact that the drill site was expressly located 630 feet north, 30 degrees west of the NE corner of the North Spur #1. In point of fact, the North Spur #1 is not among the claims listed in the affidavit of assessment work as claims for which assessment work had been performed. The most logical conclusion is that this claim was owned by unknown third parties and was located outside the periphery of the claim block being explored. If this is, in fact, the case, the drill hole could not have been located on one of appellants' claims since the Goldstrike claims completely surround the Tin Mountain and Serpentine claims on the south and west. See Exh. B-2. We think it clear that the evidence of

28/ Sheehan admitted, however, that he had not made any of the cuts to which the document referred since he was not on the claims in 1970 (Tr. 576).

Exhibit P, considered in its entirety, requires placement of Hole V-6-1 outside of appellants' claims. 29/

In any event, while appellants' attempt to place drill Hole V-6-1 within the limits of their claims (without attempting to identify which claim it might have been located in), they also seek to ignore the conclusions which Rowan drew from its drilling program. Thus, the report concluded:

The geophysical and geochemical anomalies at both the Vein #3 lower bench site and the Vein #6 site have been tested by drilling, and the causes of the anomalies adequately explained. No commercial levels of mineralization were encountered in the holes. At Dike Hill, the strong geochemical anomaly has been supported by geophysics although this zone was not tested by drilling. [Emphasis supplied.]

(Exh. P at 3).

Sainsbury's conclusion as to the possible marketability of the cassiterite deposit intersected by Hole V-6-1 (Tr. 961-62) was made totally on speculation as to the possible length and depth of the vein for which no

29/ Another practical difficulty with appellants' argument is that the three cuts to which Clemmer testified were all located on the Tin Mountain claims, which are directly north of the Serpentine claims. A location of the drill hole based on any of these three cuts would require that the North Spur #1 be located over either the Serpentine No. 6 or the Tin Mountain Nos. 7 or 8. There was, however, absolutely no evidence of any claim conflicts in the area nor is it likely that Rowan would use a conflicting claim as a reference point in derogation to a claim which it had under lease.

support appears in the record. ^{30/} Moreover, Sainsbury admitted that he could not specifically identify the location of any of the drill holes (Tr. 964). And Sainsbury's estimate of value ignores the fact that Rowan, which was in the best position to evaluate the data which it developed, subsequently abandoned its option to purchase the claims. Thus, even if we could actually locate Hole V-6-1 within a specific claim, it would not be sufficient by itself to establish that a reasonably prudent man would be justified in the further expenditure of his labor and means with a reasonable prospect of success in developing a paying mine with respect to the claim upon which the drill hole was located. There is no possible way that this hole can be deemed to validate all of the 35 claims in the Tin Mountain and Serpentine groups.

There remains the samples taken by Brian Tognoni in 1976. At the outset, we note that the grid samples were taken primarily from Tin Mountain Nos. 21 and 22, with a slight overlap into No. 20. The 10,000-foot line sample crossed parts of the Tin Mountain Nos. 1 through 11, and 14. See Exh. J. It would follow, therefore, that nothing disclosed in Tognoni's samples could serve to constitute the exposure of a mineral deposit, much less a valuable mineral deposit, which is the sine qua non of discovery on any of the other claims. Accordingly, the Diane Nos. 1 to 6, the Serpentine Nos. 1 to 9, and the Tin Mountain Nos. 12, 13, 15 to 19, and 23 to 26 claims _____
^{30/} Moreover, Clemmer pointed out that Sainsbury's cost computations were based on in-place value and that actual mining would require a 36-inch mining width to extract the deposit which would significantly dilute total returns (Tr. 1005-09).

must be deemed null and void since they fail to show an exposure of a valuable mineral deposit within the meaning of the mining laws.

Of the 66 sampling sites located within the Tin Mountain claims (E-35 to E-100), not a single one reported anything other than "nil" for tin, and only 15 showed any silver, the highest (E-72 and E-83) assaying at 4 ppm. See Exh. H. Given the fact that the background value for silver was 1 ppm (see Exh. B-1, Table 2), only 6 of the 66 samples registered above background levels for silver. Furthermore, only four samples registered even twice the established background values for any other of the minerals tested, all of them showing lead at levels two to three times greater than background. 31/

No background levels had been established for beryllium. Of the 66 samples, 15 showed 5 ppm, 45 showed 10 ppm, and 6 showed 15 ppm. Sainsbury, as noted above, testified that beryllium readings of 10 ppm or higher indicated "a source area somewhere shedding beryllium into that drainage." Even assuming that this testimony, which was given with reference to the placer claims, would be equally applicable to the beryllium showings disclosed on the lode claims, the readings disclosed could scarcely constitute evidence that the source area happened to be under any of the claims or that the source area, itself, contained beryllium in sufficient quantity and quality to justify a prudent man in expending time and effort

31/ These four samples were E-63, E-71, E-72, and E-74, which showed assay values of 180 ppm, 150 ppm, 190 ppm, and 150 ppm, respectively (background levels being 70 ppm).

with the reasonable expectation of developing a paying mine. This is evidence which, while it may have some value as a spur to exploration, clearly fails to establish that a discovery of a valuable mineral deposit has been made. Accordingly, we must affirm Judge Sweitzer's conclusion that the Tin Mountain Nos. 1 to 11, and 14 claims are null and void.

There remains to be analyzed the results of the grid survey conducted primarily on the Tin Mountain Nos. 21 and 22, with approximately four sample sites located within the Tin Mountain No. 20. As noted above, Brian Tognoni testified that a total of 121 samples were taken in a square grid pattern at intervals of 100 feet. Approximately half of these samples, generally the northern samples (see Exh. L), 32/ were rock chip samples taken from "outcrops of rock, in-place rock" (Tr. 453), while the other half were soil samples taken by an auger driven downward to the point of resistance, usually the permafrost layer one or two feet below the surface (Tr. 401). Sainsbury, in his review of the assay returns, underlined those results which he thought favorable because of the number of anomalous readings. See Exh. H (underlined). Sainsbury was clearly of the view that the results were generally supportive of his own sampling, even though there was no overlap in the areas sampled. Our review, however, fails to disclose any basis upon which it could be concluded that a discovery of a valuable mineral deposit was disclosed by Brian Tognoni's sampling.

32/ There is, however, one mistake on Exhibit L. A comparison of Exhibit L with Exhibit I indicates that the Sample No. 3438 was a rock chip sample. Actually, this sample was a soil sample. Sample No. 3439, immediately to the east, was a rock chip sample. See Exh. H. All computations appearing in the text of this decision have been made in light of this correction.

Of the 121 samples, 65 were soil samples and 56 were rock chip samples. An analysis of the results discloses that, notwithstanding Sainsbury's conclusions, nothing in the reported values lends support to the assertion that appellants' sampling program exposed a valuable mineral deposit of rock in place. In fact, quite the contrary result is disclosed.

We note that Bulletin 1312-H provided the following background values for the minerals tested (with the exception of beryllium): silver - 1 ppm; arsenic - 150 ppm; copper - 100 ppm; lead - 70 ppm; antimony - 150 ppm; tin - 15 ppm; and zinc - 150 ppm. Not only is the average value of the samples below the background value for every mineral except silver and lead, 33/ the average value of the rock chip samples is below the average value of the soil samples for every single mineral, and in most cases, substantially so. 34/

As we discussed above, the soil samples, taken from areas immediately above the permafrost did not sample rock in place, and thus, even if the values disclosed were substantially higher, the sampling could not have exposed mineralization which would have supported a lode discovery. And, an examination of the assay reports in greater detail with respect to the

33/ The average values were: silver - 1.21 ppm; arsenic - 60.74 ppm; copper - 44.63 ppm; lead - 97.35 ppm; antimony - .34 ppm; tin - 10.45 ppm; and zinc - 53.93 ppm.

34/ The comparisons are as follows: Silver: soil samples - 1.95 ppm, rock chip samples - 0.34 ppm. Arsenic: soil samples - 68.58 ppm, rock chip samples - 51.64 ppm. Copper: soil samples - 56 ppm, rock chip samples - 31.07 ppm. Lead: soil samples - 167.15 ppm, rock chip samples - 16.34 ppm. Antimony: soil samples - 0.42 ppm, rock chip samples - 0.26 ppm. Tin: soil samples - 12.3 ppm, rock chip samples - 8.30 ppm. Zinc: soil samples - 81.5 ppm, rock chip samples - 21.9 ppm.

56 rock chip samples clearly establishes that appellants did not expose an in place mineralization sufficient to meet the prudent man test.

The assay results disclose that not a single assay reveals any values above the background levels for copper, antimony or zinc, only one sample showed higher than background levels for lead, only two samples for arsenic, three for silver, and nine for tin. Only one rock chip sample showed even three minerals above background levels and that sample showed a total anomaly of only 1.67. 35/ The highest total anomaly reading for a rock chip sample was 5.6 based on a reading of 100 ppm for tin. 36/ Only one rock chip sample other than the two above even showed an anomaly above 1. 37/ Based on these showings, there is simply no basis upon which to predicate a determination that appellants' sampling had exposed a valuable mineral deposit.

We are well aware of the fact that averaging of assay returns is subject to the criticism that it distorts the purpose of geochemical sampling which is to identify anomalies as a guide for targeting areas for further exploration. But that is the precise point. It is insufficient for purposes of establishing a discovery under the mining laws to merely show that the evidence is such that further investigation is warranted with the hope that such actions will uncover the source of the anomalies. Rather, the source itself must be identified. Once that is accomplished,

35/ This was sample No. 3119. The procedure for ascertaining the total anomaly is set out in Exhibit B-1 at H3-H4.

36/ This was sample No. 3485.

37/ This was sample No. 3477 which had a total anomaly of 3 based on a silver assay of 4 ppm.

geologic inference may be used to show that sufficient quantity and quality exists to support a reasonable expectation of success in developing a paying mine. That this was not done herein is highlighted by the fact that the rock chip samples consistently assayed for lower values than the soil samples. The source of the enrichment of the soil samples and whether such deposit would be amenable to successful mining operations is no more ascertainable now than it was before the grid samples were taken. 38/ We must conclude, therefore, that Judge Sweitzer was correct when he held that appellants had failed to establish that these claims were supported by a discovery. His decision with respect to the Tin Mountain Nos. 20, 21, and 22 must be affirmed.

The final issue to be decided is the validity of the Sheehan Nos. 1-21 placer mining claims. Judge Sweitzer gave short shrift to these claims, noting that "only sample No. 3334 shows any tin values (Exh. H) and no evidence has attributed this sample to any particular claim" (Decision at 20). In fact, the only evidence supportive of these claims was the tepid endorsement rendered by Sainsbury at the hearing when he noted "the modest _____

38/ The difference between anomalous geochemical analyses and discovery of the mineral deposit was clearly expressed by Sainsbury with reference to the two high beryllium soil samples (Nos. 3402 and 3406). Commenting favorably on the high showings, Sainsbury compared it to showings in the drainage below the Lost River Mine of 200 to 220 ppm in stream sediments. These showings, he testified, "led us to the discovery of the Cape Creek ore body" (Tr. 743). The problem in the instant case is that while a beryllium deposit might underlie one or more of appellants' claims, they never "discovered" it. And, even if they had, the discovery could only have occurred in 1976, at a point in time in which the land had long since been withdrawn from mineral entry, and their belated "discovery" would not breathe life into the claim. See, e.g., United States v. Lara, 67 IBLA 48, 57 (1982), (On Reconsideration), 80 IBLA 215 (1984), aff'd, 642 F. Supp. 458, 461 (D. Or. 1986), aff'd as modified, 820 F.2d 1535, 1542 (9th Cir. 1987).

amount of work down there does indicate the presence of minerals or metals which would warrant interest by a prudent man to continue development" (Tr. 822). Given our analysis of Sainsbury's basis for his assertion that the lode claims, for which far more exploratory data existed, were supported by a discovery, it is impossible to place any reliance on his similar conclusion with respect to the placer claims.

Indeed, while we agree that the geochemical and structural analyses of the area of the lode claims might well lead a prudent man to continue exploration in the hope of ultimately making a discovery, the minimal showings contained in the assay reports of the placer samples could scarcely be said to engender the same hope. ^{39/} Nor was the original location of these claims impelled by any assumed "discovery." Sheehan was quite candid in providing that the reason why the placer claims were located in the area in which they are found. In response to a question from contestees' attorney as to why the placer claims had been located so far in distance from the lodes, Sheehan responded, "Because everything else in between those were closed to mineral entry" (Tr. 629). We think the evidence is overwhelming

^{39/} Indeed, even the single assay which reported the presence of tin failed to indicate that it was present above the background levels determined by Sainsbury in Bulletin 1312-H for the area of the lode claims. Indeed, with the exception of one other sample (No. 3317) which assayed 2 ppm for silver, and two samples (Nos. 3335 and 3336) which showed zinc at 390 ppm and 250 ppm, respectively, no other samples showed above these background levels for any of the minerals tested. While these assays did consistently show low levels of beryllium, not only are these returns subject to the analysis set forth supra at note 37, but we would also point out that there is absolutely no evidence that the ultimate source of the enrichment would be a deposit in placer formation. See Cole v. Ralph, supra.

that these placer claims are not now and were not either at the time of the hearing or on the date of the applicable withdrawal (November 1978) supported by a discovery of a valuable mineral deposit. Judge Sweitzer's decision declaring these claims null and void must also be affirmed. 40/

In summary, we find that there is no basis in law or in fact for estopping the Government from inquiring into the validity of the subject mining claims. We further find that while the evidence relating to the Diane, Tin Mountain, and Serpentine lode claims might entice a prudent man to continue exploration in the hope of exposing a valuable mineral deposit, the evidence establishes that such a deposit has not yet, in fact, been exposed on any of the claims. Accordingly, these claims are properly deemed null and void. Insofar as the Sheehan placer claims are concerned, it is arguable whether sufficient indications of mineralization exist to even justify further exploration. The record is absolutely clear that these claims are not supported by a discovery of a valuable mineral deposit and they are properly declared null and void. In light of the foregoing determinations, there has been no unconstitutional taking of property in violation of the Fifth Amendment since, absent the existence of a discovery, a mining claimant has no property rights as against the United States.

40/ In view of our conclusion as to the lack of discovery of a valuable mineral deposit on any of the placer claims, we do not reach the question as to the applicability of the 40-acre limitation, provided by Alaska State law, to the claims at issue. See notes 2 and 3, supra.

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the decision appealed from is affirmed in its entirety.

James L. Burski
Administrative Judge

I concur:

Wm. Philip Horton
Chief Administrative Judge